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SHORT COMMUNICATION

An update on the presence of *Leucomigus candidatus candidatus* (Coleoptera, Curculionidae, Lixinae) in Romania

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Abstract

This survey presents the first precise records of *Leucomigus candidatus candidatus* (Pallas, 1781) in Romania, confirming thus the presence of this species almost a century after its first and single record. Furthermore, ecology, habitat preference and distribution are discussed. We illustrate this taxon with high quality macro photographs, including the male genitalia with the everted and inflated endophallus. Comparative plates with similar-looking species are provided. New localities from Romania and Republic of Moldova are recorded for *Cleonis pigra* (Scopoli, 1763) and *Cyphocleonus dealbatus* (Gmelin, 1790).

Keywords

Coleoptera, weevils, distribution, new record, Romania.

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The genus *Leucomigus* Motschulsky, 1860 belongs to the weevil tribe Cleonini and includes two Palaearctic species, the most widespread one being *Leucomigus candidatus* (Pallas, 1781) (Meregalli and Fremuth 2013; Meregalli 2017; Alonso-Zarazaga et al. 2023). This species has two recognized subspecies: *L. c. albotesselatus* (Fairmaire, 1868) found only in Algeria and Morocco (Alonso-Zarazaga et al. 2023) and distinguished by its larger size, elongated habitus and rostrum with a stronger keel (Fairmaire 1868), and the nominotypical subspecies found in Europe only in South European Russia (Alonso-Zarazaga et al. 2023), Ukraine (Yunakov et al. 2018), and Romania (Petri 1926, Teodor and Antonie Vlad 2007). In Romania, the only record is from "Siebenbürgen" (i. e. Transylvania) without precise locality (Petri 1926) and it remained unknown to the scientific community. Thus, Romania is not mentioned in the latest published Palaearctic catalogues (Meregalli and Fremuth 2013; Meregalli 2017; Alonso-Zarazaga et al. 2023).

The taxon resembles in habitus and size other Cleonini from Romanian fauna like *Adosomus roridus* (Pallas, 1781), *Cleonis pigra* (Scopoli, 1763) and *Cyphocleonus* spp. but it has a distinctive marbled pattern of white pubescence, a stocky, subparallel habitus and a shorter, stockier rostrum with a weaker keel (Figs 1, 2). It further differs by having the second segment of the antennal funicle longer than the first one, while in the other species the two segments either have the same length or the second segment is slightly shorter than the first one (Reitter 1913). Also, pronotum in *Leucomigus candidatus* s. str. is visibly bell-shaped, as wide as the elytra or oftentimes wider, while in *Adosomus roridus*, *Cleonis pigra* and *Cyphocleonus dealbatus* (Gmelin,

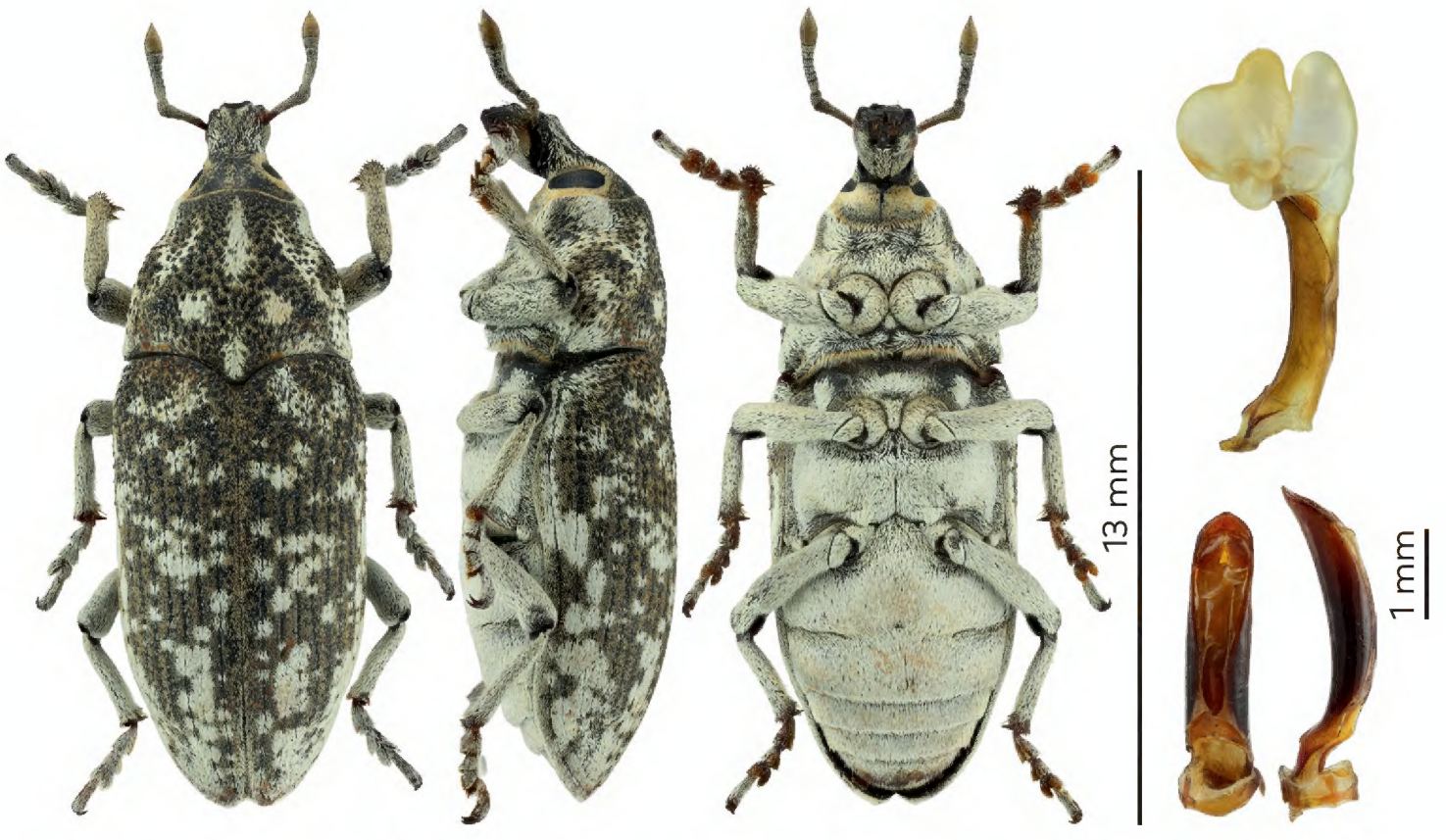

Figure 1. *Leucomigus candidatus candidatus*: habitus and aedeagus, including the inflated endophallus (specimen from Romania, Iaşi county, Valea lui David, 10.VII.2021, COMC).

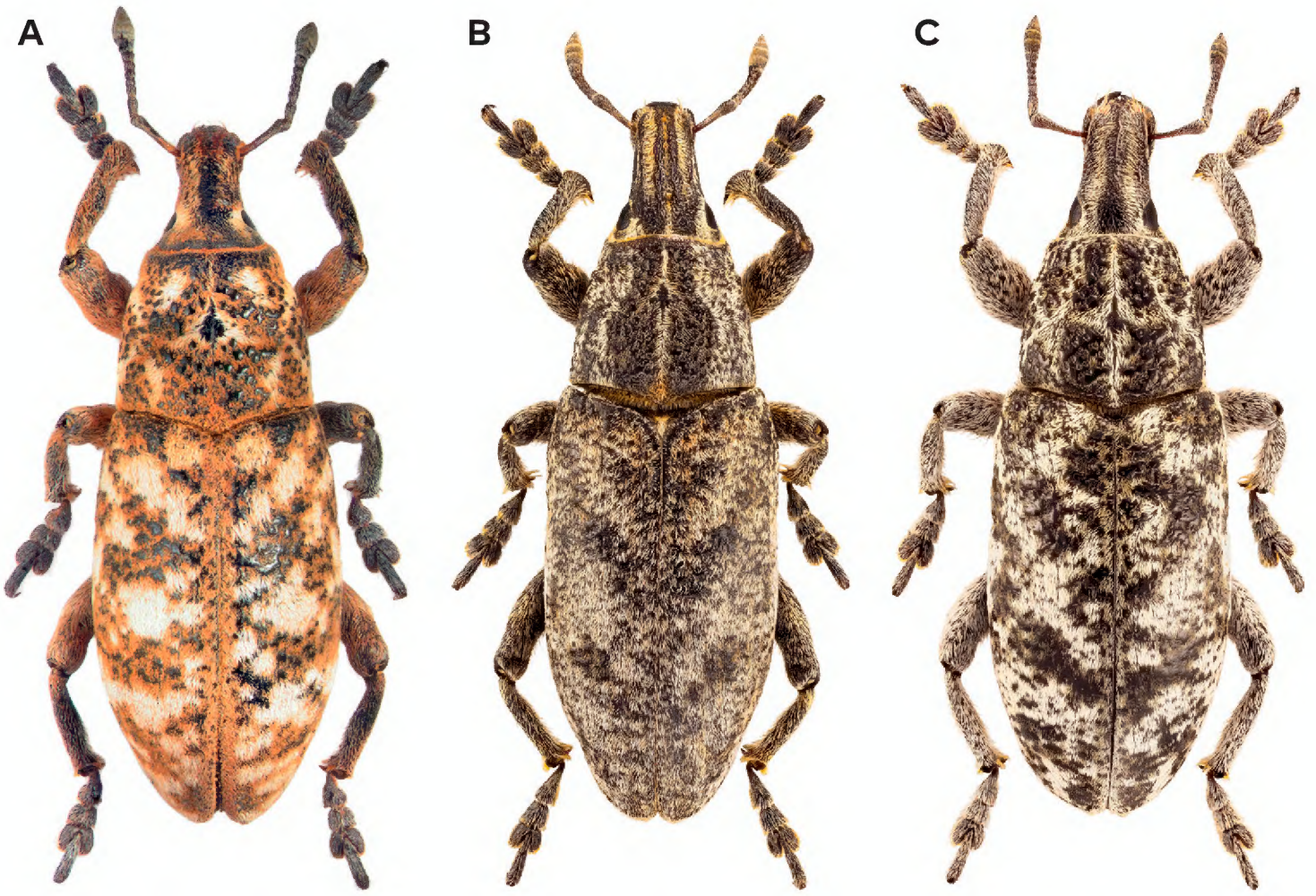

Figure 2. Habitus of selected species resembling *Leucomigus candidatus candidatus*. **A** *Adosomus roridus*, E Ukraine, Dnepropetrovsk reg., Andreevka (by the courtesy of Maxim Smirnov, www.zin.ru), **B** *Cleonis pigra* (Romania, Iași county, Valea lui David, 3.IV.2022, COMC), **C** *Cyphocleonus dealbatus* (Romania, Vaslui county, near Hordileşti, 20.IX.2023, COMC).

1790) it is subtriangular, constricted towards the anterior margin in a straight line and usually it is narrower than elytra base (Figs 1, 2). The morphological variation in *L. candidatus* s. str. consists mainly in the size, in our specimens from 8.5 to 15 mm without rostrum (females being usually larger than males), and disposition of the white pubescent spots.

Leucomigus candidatus s. str. inhabits xerothermic habitats and is associated with several *Artemisia* species. The imago feeds on the leaves of the host plant and the larva develops in a roughly 2 by 3 cm gall at the root base (Volovnik and Nazarenko 2009; Volovnik 2010; Yunakov et al. 2018). The adults are active between June and September. While it used to be a relatively common species in the southern part of Ukraine (Volovnik 1984), it has registered there a steady decline in the last decades (Volovnik and Nazarenko 2009), becoming increasingly rare. The main cause of this decline is the continuous degradation of its habitat, consisting of land use change, sand mining, overgrazing and construction of recreational facilities in coastal areas (Volovnik and Nazarenko 2009). Thus, in Ukraine it is listed as "Near Threatened" (Volovnik and Nazarenko 2009; Yunakov et al. 2018).

We found *L. candidatus* s. str. in several localities from Iași county in NE Romania (Fig. 3). These specimens and those used as comparative material are deposited

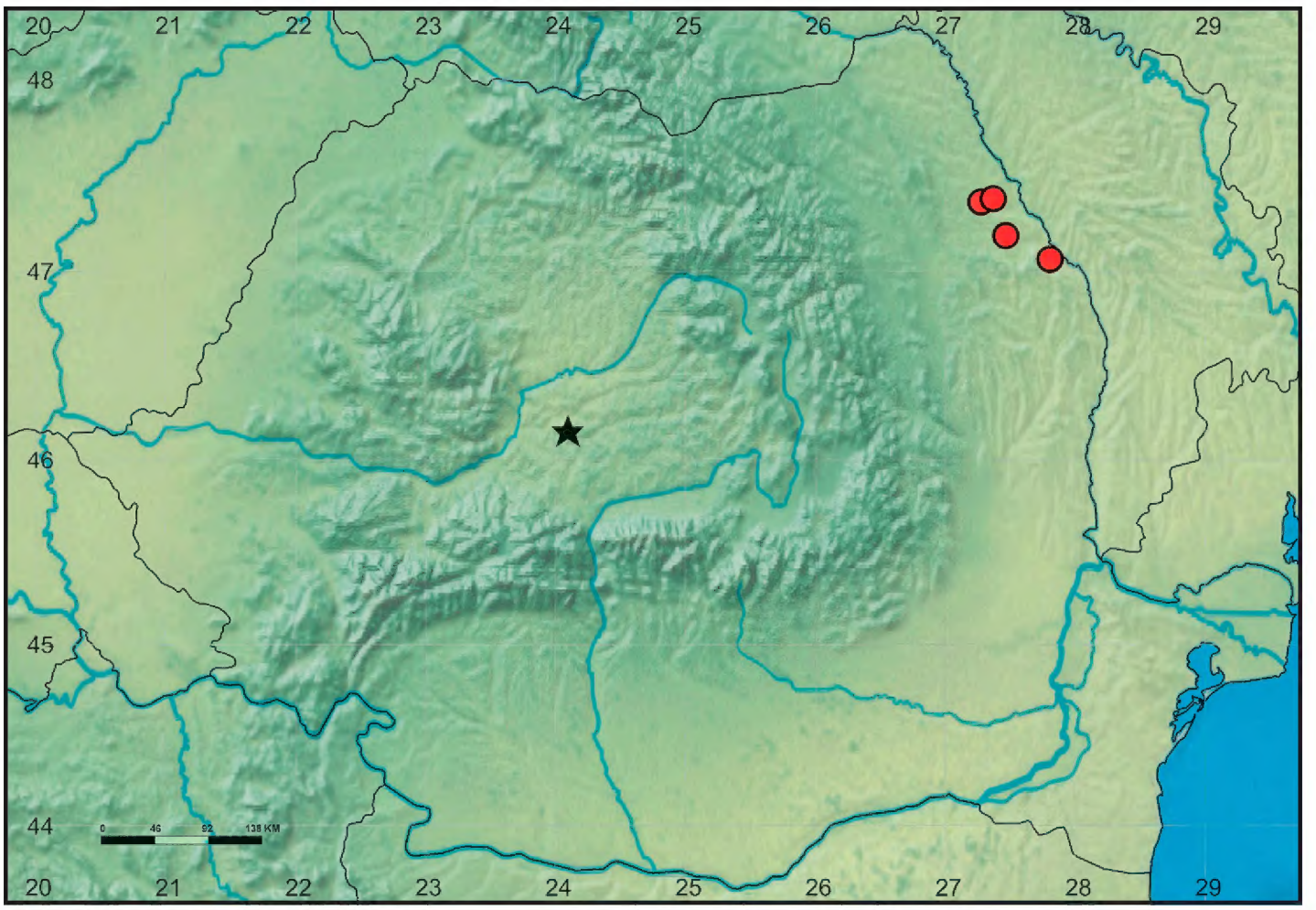

Figure 3. Distribution of *Leucomigus candidatus candidatus* in Romania. The map was generated with the software SimpleMappr (Shorthouse 2010). Red dots are the new records, black star is the historical record from Transylvania.

in the following collections: AMPC - collection of Alexandru-Mihai Pintilioaie (Agigea, Romania); COMC - collection of Cosmin-Ovidiu Manci (Iași, Romania); MMDC - collection of Maria-Magdalena Dascălu (Iași, Romania); TSOC - collection of Tudor-Sebastian Olariu (Iași, Romania). Abbreviations: a.s.l. – above sea level; Mts – Mountains; spec(s). – specimen(s)

Material examined

Leucomigus candidatus candidatus

ROMANIA (21 specimens): Iași county: Gropnița (near), 47.3770°N 27.2866°E, 115 m a.s.l., on *Artemisia santonicum,* 05.VII.2018, 3 specs, leg. Alexandru-Mihai Pintilioaie (AMPC), Valea lui David Nature Reserve, 47.1923°N 27.4679°E, 73 m a.s.l., 10.VII.2021, 16 specs, leg. Cosmin-Ovidiu Manci (COMC, TSOC), Stânca (near Comarna), 47.0681°N 27.8094°E, 30 m a.s.l., 04.VII.2017, 1 spec., leg. Cosmin-Ovidiu Manci (COMC), Borșa, 47.3754°N 27.3611°E, 46 m a.s.l., salty pasture, 08–28.VI.2018, 1 spec., leg. Maria-Magdalena Dascălu (MMDC).

Cleonis pigra

ROMANIA (12 specimens): Iași county: Iași Botanical Garden, 47.1866°N 27.5528°E, 99 m a.s.l., glade in a deciduous forest, 01.VI.2017, 1 spec., leg. Tudor-Sebastian Olariu, Alexandru-Mihai Pintilioaie (TSOC), Valea lui David Nature Reserve, 47.1911°N 27.4692°E, 95 m a.s.l., forest steppe, 30.VII.2019, 1 spec., leg. Lucian Hănceanu (TSOC), 47.1934°N 27.4673°E, 80 m a.s.l., forest steppe, 03.IV.2022, 1♂, leg. Cosmin-Ovidiu Manci (COMC), Mureș county: Valea Glodului (near), 46.6524°N 24.1009°E, 380 m a.s.l., steppe area, 22.IV.2018, 1♂, leg. Cosmin-Ovidiu Manci (COMC), Suceava county: Ilișești (near), 47.5942°N 26.0803°E, 420 m a.s.l., cropfield, 18.VIII.2016, 4 specs, leg. Tudor-Sebastian Olariu, 47.6031°N 26.0478°E, 394 m a.s.l., rural garden, 17.VIII.2018, 2 specs (TSOC), Timiș county: Dudeștii Noi, 45.8362°N 21.0908°E, 89 m a.s.l., roadside vegetation, 07.V.2021, 1 spec., leg. Alexandru Rădac (TSOC), Tulcea county: near Măcin, Măcin Mts, 45.2443°N 28.1913°E, 90 m a.s.l., steppe area, 26.VII.2011, 1 spec., leg. Cosmin-Ovidiu Manci (COMC). REPUBLIC OF MOLDOVA (1 specimen): Rezina district: Rezina, 47.7445°N 28.9595°E, 157 m a.s.l., urban habitat, 01.X.2022, leg. Tudor-Sebastian Olariu (TSOC).

Cyphocleonus dealbatus

ROMANIA (20 specimens): Constanța county: Grădina (near), 44.9596°N 28.3666°E, 160 m a.s.l., steppe area, 15.VII.2013, 1♂, leg. Cosmin-Ovidiu Manci (COMC), Galați county: Vârlezi (near), 45.9176°N 27.8283°E, 175 m a.s.l., steppe area, 22.IV.2012, 1 spec., leg. Cosmin-Ovidiu Manci (COMC), Iași county: Iași Botanical Garden, 47.1871°N 27.5563°E, 144 m a.s.l., urban park, 29.X.2023, 1 spec., obs. Cătălin Petreanu (Petreanu, pers. comm.), Vaslui county: Hordilești (near), 46.7489°N 27.5177°E, 230 m a.s.l., near road on *Artemisia* sp., 20.IX.2023, 12♂♂, 4♀♀, leg. Cosmin-Ovidiu Manci (COMC), Braşov county: Felmer (near), 45.8959°N 25.0587°E, 450 m a.s.l., pasture/forest, 23.IV.2013, 1♂, leg. Cosmin-Ovidiu Manci (COMC). REPUBLIC OF MOLDOVA (1 specimen): Rezina district: Saharna, 47.6855°N 28.9704°E, 157 m a.s.l., ruderal vegetation, on *Artemisia* sp., 15–20.VIII.2017, leg. Tudor-Sebastian Olariu (TSOC).

According to Volovnik and Nazarenko (2009) in Ukraine *Leucomigus candidatus* s. str. is usually found in coastal habitats. However, our collecting data suggest that it can also inhabit inland salty steppic areas with *Artemisia*. We found specimens to be active both during the day and the night. However, the finding of 16 specimens at night on 10 square meters suggests at least partly a nocturnal lifestyle for this subspecies. Many of the specimens found at night were on tips of *Artemisia* plants, in copula.

Its preferred habitats are under threats of degradation, which could endanger its populations. For example, the site where *Leucomigus candidatus* s. str. was found in the highest numbers (Valea lui David Nature Reserve) was subjected in past years to extensive overgrazing and vegetation fires, which have certainly had

a hazardous effect on *Leucomigus* populations. Unlike other Cleonini weevils, e.g. *Coniocleonus nigrosuturatus* (Goeze, 1777)—see Stejskal et al. (2014)—it is vulnerable to overgrazing, an acute environmental problem in Romania. There is also the unlikely scenario that this subspecies will expand its natural range in the future years due to climate change, a phenomenon already witnessed in other thermophilous weevil species (Benedikt 2010; Košťál 2015). However, this would be possible only in the event that the current degradation of natural xerothermic grasslands and steppes is stopped, which isn't likely to happen.

More fieldwork in suitable habitats is needed to find and confirm new populations, to expand the knowledge on the ecology, phenology, and the distribution of this subspecies and to describe its immature stages, life cycle and reproductive biology. Only then we could analyse its population trends and assess its conservation status, tasks which seem to be increasingly urgent as the suitable habitats of this critter are vanishing each year. *Leucomigus candidatus candidatus* was not included in the first edition of The Red Book of Invertebrates of Romania (Murariu and Maican 2021), therefore we propose it to be included in the next edition, based on its rareness and its association with steppe habitats.

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